

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-60. (Canceled)

61. (Currently amended) A liquid crystal display device which utilizes at least light from a backlight to display images, comprising:

a liquid crystal cell, the liquid crystal cell including a pair of substrates and a liquid crystal layer provided between the pair of substrates, the liquid crystal cell receiving light from the backlight;

a pair of polarizers provided so as to oppose each other via the liquid crystal cell therebetween;

a phase compensation element provided between the liquid crystal cell and at least one of the pair of polarizers; and

an antiglare layer provided on a viewer side of one of the pair of polarizers which is provided closer to a viewer;

wherein the phase compensation element comprises indices of refraction n_a , n_b and n_c , and directions corresponding thereto, wherein $n_a > n_b$ and $n_c > n_b$, wherein the direction corresponding to n_b is inclined with respect to a direction normal to the liquid crystal layer in at least part of the phase compensation element, and

wherein a haze value of the antiglare layer is equal to or greater than $[[15]]$ 40, and a value of transmitted image clarity of the antiglare layer is equal to or greater than 10 as measured

with an image clarity meter in which a width of an optical comb is 0.5 mm, and wherein the antiglare layer has an internal scattering layer and a scattering surface.

62. (Previously presented) The liquid crystal display device of claim 61, wherein n_a is approximately equal to n_c .

63. (Previously presented) The liquid crystal display device of claim 61, wherein the phase compensation element comprises a discotic liquid crystal material in an inclined or hybrid orientation held in a matrix obtained by cross-linking an organic polymer, and wherein the antiglare layer is made of a single layer or a multi-layer structure.

64. (Previously presented) The liquid crystal display device of claim 61, wherein the internal scattering layer includes a polymer matrix and particles dispersed in the polymer matrix, and a refractive index of the particles and a refractive index of the polymer matrix are different from each other.

65. (Previously presented) The liquid crystal display device of claim 64, wherein the difference in the refractive index between the particles and the polymer matrix is within the range of 0.03 to 0.10 in its absolute value.

66. (Canceled)

67. (Previously presented) The liquid crystal display device of claim 61, wherein a refractive index anisotropy $\Delta n(550)$ of a liquid crystal material of the liquid crystal layer for light having a wavelength of 550 nm is in a range of $0.060 < \Delta n(550) < 0.120$.

68. (Previously presented) The liquid crystal display device of claim 61, wherein the phase compensation element is arranged so that the direction corresponding to n_b forms an angle in a range of 15 to 75 degrees with respect to the direction normal to the liquid crystal layer.

69. (Previously presented) The liquid crystal display device of claim 61, wherein $(n_a - n_b) \times d$ is in a range of 80 nm to 250 nm, where d denotes a thickness of the phase compensation element in the direction normal to the liquid crystal layer.

70. (Previously presented) The liquid crystal display device of claim 61, wherein the liquid crystal layer is a twist orientation liquid crystal layer.

71. (Canceled)

72. (Currently amended) The liquid crystal display device of claim ~~[[71]]~~ 61, wherein a refractive index anisotropy $\Delta n(550)$ of a liquid crystal material of the liquid crystal layer for light having a wavelength of 550 nm is in a range of $0.060 < \Delta n(550) < 0.120$.

73. (Currently amended) The liquid crystal display device of claim 61, wherein the phase compensation element is arranged so the direction of n_b forms an angle in a range of 15 to 75 degrees with respect to the direction normal to the liquid crystal layer.

74. (Currently amended) The liquid crystal display device of claim 61, wherein $(n_a - n_b) \times d$ is in a range of 80 nm to 250 nm, where d denotes a thickness of the phase compensation element in the direction normal to the liquid crystal layer.

75. (Currently amended) The liquid crystal display device of claim 61, wherein the phase compensation element includes a discotic liquid crystal material in an inclined or hybrid orientation.

76. (Previously presented) The liquid crystal display device of claim 61, wherein the phase compensation element comprises an index ellipsoid including the indices of refraction n_a , n_b and n_c which are orthogonal to one another.

77. (Previously presented) The liquid crystal display device of claim 76, wherein the phase compensation element comprises a discotic layer including liquid crystal material, and wherein n_a , n_b and n_c are principal indices of the index ellipsoid.

78. (Previously presented) The liquid crystal display device of claim 61, wherein said display includes first and second of said phase compensation elements on opposite sides of said liquid crystal layer.

79. (Currently amended) A liquid crystal display device which utilizes at least light from a backlight in displaying images, the liquid crystal display comprising:

a liquid crystal cell, the liquid crystal cell including a pair of substrates and a liquid crystal layer provided between the pair of substrates;

a pair of polarizers provided so as to oppose each other via the liquid crystal cell therebetween;

a phase compensation element provided between the liquid crystal cell and at least one of the pair of polarizers; and

an antiglare layer provided on a viewer side of one of the pair of polarizers which is provided closer to a viewer,

wherein a haze value of the antiglare layer is equal to or greater than $[[15]]$ 40, and a value of transmitted image clarity the antiglare layer is equal to or greater than 10 as measured with an image clarity meter in which a width of an optical comb is 0.5 mm, and wherein the antiglare layer has an internal scattering layer and a scattering surface, and

wherein the phase compensation element includes a discotic liquid crystal material in an inclined or hybrid orientation in at least part of the phase compensation element.

80. (Previously presented) The liquid crystal display device of claim 79, wherein the phase compensation element has an index ellipsoid which has three principal axes, a-axis, b-axis and c-axis, which are orthogonal to one another, and three principal orthogonal refractive indices, n_a , n_b and n_c , and wherein $n_a > n_b$, $n_c > n_b$, and wherein a direction corresponding to n_a is substantially parallel to a layer plane of the liquid crystal layer, and a direction corresponding to

nb is inclined with respect to a layer normal of the liquid crystal layer in at least part of the compensation element.

81. (Previously presented) The liquid crystal display device of claim 79, wherein the phase compensation element comprises the discotic liquid crystal material in the inclined or hybrid orientation held in a matrix obtained by cross-linking an organic polymer.

82. (Previously presented) The liquid crystal display device of claim 79, wherein the internal scattering layer includes a polymer matrix and particles dispersed in the polymer matrix, and a refractive index of the particles and a refractive index of the polymer matrix are different from each other.

83. (Previously presented) The liquid crystal display device of claim 82, wherein the difference in the refractive index between the particles and the polymer matrix is within the range of 0.03 to 0.10 (absolute value).

84. (Canceled)

85. (Previously presented) . The liquid crystal display device of claim 79, wherein a refractive index anisotropy $\Delta n(550)$ of a liquid crystal material of the liquid crystal layer for light having a wavelength of 550 nm is in a range of $0.060 < \Delta n(550) < 0.120$.

86. (Previously presented) The liquid crystal display device of claim 80, wherein the phase compensation element is arranged so that b-axis forms an angle in a range of 15 to 75 degrees with respect to a direction normal to the liquid crystal layer.

87. (Previously presented) The liquid crystal display device of claim 80, wherein $(n_a - n_b) \times d$ is in a range of 80 nm to 250 nm, where d denotes a thickness of the phase compensation element in a direction normal to the liquid crystal layer.

88. (Previously presented) The liquid crystal display device of claim 80, wherein n_a is approximately equal to n_c .

89. (Previously presented) The liquid crystal display device of claim 79, wherein the liquid crystal layer is a twist orientation liquid crystal layer.

90. (Canceled)

91. (Currently amended) The liquid crystal display device of claim ~~[[90]]~~ 79, wherein a refractive index anisotropy $\Delta n(550)$ of a liquid crystal material of the liquid crystal layer for light having a wavelength of 550 nm is in a range of $0.060 < \Delta n(550) < 0.120$.

92. (Currently amended) The liquid crystal display device of claim ~~[[90]]~~ 79, wherein the phase compensation element is arranged so that the direction of n_b forms an angle in a range of 15 to 75 degrees with respect to a direction normal to the liquid crystal layer.

93. (Currently amended) The liquid crystal display device of claim [[90]] 79, wherein $(n_a - n_b) \times d$ is in a range of 80 nm to 250 nm, where d denotes a thickness of the phase compensation element in a direction normal to the liquid crystal layer.

94. (Currently amended) A liquid crystal display device, comprising:
a liquid crystal cell, the liquid crystal cell including a pair of substrates and a liquid crystal layer provided between the pair of substrates;
a pair of polarizers provided so as to oppose each other via the liquid crystal cell therebetween, so that the liquid crystal display uses light from a backlight for display;
a phase compensation element provided between the liquid crystal cell and at least one of the pair of polarizers; and
an antiglare layer provided on a viewer side of one of the pair of polarizers which is provided closer to a viewer, wherein a haze value of the antiglare layer is equal to or greater than [[15]] 40;

wherein said antiglare layer suppresses coloration at a viewing angle of 50° so that the antiglare layer causes a chromaticity value (x, y) of the liquid crystal display to be characterized by a relationship of $x \leq 0.3581$ and $y \leq 0.3675$ when the viewing angle is 50° , while at the same time a white image is displayed at a normal viewing angle.

95. (Previously presented) The liquid crystal display device of claim 94, wherein the chromaticity value (x, y) has a relationship of $x \leq 0.3647$ and $y \leq 0.3650$ when a viewing angle is 60° .

96. (Previously presented) The liquid crystal display device of claim 94, wherein the phase compensation element has an index ellipsoid which has three axes, a-axis, b-axis and c-axis, which are orthogonal to one another, and three refractive indices, n_a , n_b and n_c , wherein $n_a > n_b$ and $n_c > n_b$, and wherein the a-axis is substantially parallel to a plane of the liquid crystal layer, and the b-axis is inclined with respect to a direction normal to the liquid crystal layer.

97. (Previously presented) The liquid crystal display device of claim 96, wherein n_a is approximately equal to n_c .

98. (Previously presented) The liquid crystal display device of claim 94, wherein the antiglare layer has an internal scattering layer and a scattering surface.

99. (Previously presented) The liquid crystal display device of claim 98, wherein the internal scattering layer includes a polymer matrix and particles dispersed in the polymer matrix, and a refractive index of the particles and a refractive index of the polymer matrix are different from each other, and wherein the antiglare layer is made of a single layer or a multi-layer structure.

100. (Canceled)

101. (Canceled)

102. (Previously presented) The liquid crystal display device of claim 94, wherein a value of transmitted image clarity of the antiglare layer is equal to or greater than 10 as measured with an image clarity meter in which a width of an optical comb is 0.5 mm.

103. (Previously presented) The liquid crystal display device of claim 94, wherein a refractive index anisotropy $\Delta n(550)$ of a liquid crystal material of the liquid crystal layer for light having a wavelength of 550 nm is in a range of $0.060 < \Delta n(550) < 0.120$.

104. (Previously presented) The liquid crystal display device of claim 94, wherein the phase compensation element is arranged so that b-axis forms an angle in a range of 15 to 75 degrees with respect to a direction normal to the liquid crystal layer.

105. (Previously presented) The liquid crystal display device of claim 94, wherein $(n_a - n_b) \times d$ is in a range of 80 nm to 250 nm, where d denotes a thickness of the phase compensation element in a direction normal to the liquid crystal layer.

106. (Previously presented) The liquid crystal display device of claim 94, wherein the phase compensation element includes a discotic liquid crystal material in an inclined or hybrid orientation.

107. (Previously presented) The liquid crystal display device of claim 94, wherein the liquid crystal layer is a twisted type liquid crystal layer.

108. (Currently amended) A liquid crystal display device, comprising:

a liquid crystal cell, the liquid crystal cell including a pair of substrates and a liquid crystal layer provided between the pair of substrates;

a pair of polarizers provided so as to oppose each other via the liquid crystal cell therebetween, so that the display uses at least transmissive light in displaying images;

a phase compensation element provided between the liquid crystal cell and at least one of the pair of polarizers; and

an antiglare layer provided on a viewer side of one of the pair of polarizers which is provided closer to a viewer, wherein a haze value of the antiglare layer is equal to or greater than [[15]] 40;

wherein the antiglare layer suppresses coloration at a viewing angle of 60 degrees and causes a chromaticity value (x, y) of the liquid crystal display to have a relationship of $x \leq 0.3647$ and $y \leq 0.3650$ when the viewing angle is 60 degrees, and at the same time a white image is displayed at a normal viewing angle.

109. (Previously presented) The liquid crystal display device of claim 108, wherein the phase compensation element has an index ellipsoid which has three principal axes, a-axis, b-axis and c-axis, which are orthogonal to one another and three principal refractive indices, n_a , n_b and n_c , and wherein $n_a > n_b$, $n_c > n_b$, a-axis is substantially parallel to a layer plane of the liquid crystal layer, and b-axis is inclined with respect to a layer normal of the liquid crystal layer.

110. (Previously presented) The liquid crystal display device of claim 109, wherein n_a is approximately equal to n_c .

111. (Previously presented) The liquid crystal display device of claim 108, wherein the antiglare layer has an internal scattering layer and a scattering surface.

112. (Previously presented) The liquid crystal display device of claim 111, wherein the internal scattering layer includes a polymer matrix and particles dispersed in the polymer matrix, and a refractive index of the particles and a refractive index of the polymer matrix are different from each other.

113. (Canceled)

114. (Canceled)

115. (Previously presented) The liquid crystal display device of claim 108, wherein a value of transmitted image clarity of the antiglare layer is equal to or greater than 10 as measured with an image clarity meter in which a width of an optical comb is 0.5 mm.

116. (Previously presented) The liquid crystal display device of claim 108, wherein a refractive index anisotropy $\Delta n(550)$ of a liquid crystal material of the liquid crystal layer for light having a wavelength of 550 nm is in a range of $0.060 < \Delta n(550) < 0.120$.

117. (Previously presented) The liquid crystal display device of claim 108, wherein the phase compensation element is arranged so that b-axis forms an angle in a range of 15° to 75° with respect to a layer normal of the liquid crystal layer.

118. (Previously presented) The liquid crystal display device of claim 108, wherein $(n_a - n_b) \times d$ is in a range of 80 nm to 250 nm, where d denotes a thickness of the phase compensation element in a layer normal direction of the liquid crystal layer.

119. (Previously presented) The liquid crystal display device of claim 108, wherein the phase compensation element includes a discotic liquid crystal material in an inclined or hybrid orientation.

120. (Previously presented) The liquid crystal display device of claim 108, wherein the liquid crystal layer is a twisted type liquid crystal layer.

121. (Currently amended) A liquid crystal display device, comprising:
a liquid crystal cell, the liquid crystal cell including a pair of substrates and a liquid crystal layer provided between the pair of substrates;
a pair of polarizers provided so as to oppose each other via the liquid crystal cell therebetween, and wherein the liquid crystal display uses at least light from a backlight for displaying images;
an antiglare film provided on a viewer side of one of the pair of polarizers which is provided closer to a viewer, wherein the antiglare film has an internal scattering layer and a

scattering surface, and wherein the antiglare film has a haze value equal to or greater than $[[15]]$
40; and

wherein the internal scattering layer of the antiglare film includes a polymer matrix and particles dispersed in the polymer matrix, and a difference in refractive index between said particles and said polymer matrix in which the particles are provided is significant so as to cause internal scattering in the antiglare film, wherein the difference in the refractive index between the particles and the polymer matrix is within the range of 0.03 to 0.10 in absolute value.

122. (Previously presented) The liquid crystal display device of claim 121, wherein the antiglare film is made of a single layer or a multi-layer structure.

123. (Canceled)

124. (Canceled)

125. (Previously presented) The liquid crystal display device of claim 121, wherein a value of transmitted image clarity of the antiglare film is equal to or greater than 10 as measured with an image clarity meter in which a width of an optical comb is 0.5 mm.

126. (Previously presented). The liquid crystal display device of claim 121, wherein a refractive index anisotropy $\Delta n(550)$ of a liquid crystal material of the liquid crystal layer for light having a wavelength of 550 nm is in a range of $0.060 < \Delta n(550) < 0.120$.

127. (Previously presented) The liquid crystal display device of claim 121, wherein the liquid crystal layer is a twist orientation liquid crystal layer.

128. (Previously presented) The liquid crystal display device of claim 121, further comprising a phase compensation element provided between the liquid crystal cell and at least one of the pair of polarizers.

129. (Previously presented) The liquid crystal display device of claim 128, wherein the phase compensation element comprises a discotic liquid crystal material in an inclined or hybrid orientation.

130-131. (Canceled)

132. (Previously presented) The liquid crystal display device of claim 128, wherein a value of transmitted image clarity of the antiglare film is equal to or greater than 10 as measured with an image clarity meter in which a width of an optical comb is 0.5 mm.

133. (Previously presented) The liquid crystal display device of claim 132, wherein the phase compensation element has an index ellipsoid which has three principal axes, a-axis, b-axis and c-axis, which are orthogonal to one another and three principal refractive indices, n_a , n_b and n_c , and wherein $n_a > n_b$, $n_c > n_b$, a-axis is substantially parallel to a layer plane of the liquid crystal layer, and b-axis is inclined with respect to a layer normal of the liquid crystal layer.

134. (Previously presented) The liquid crystal display device of claim 133, wherein n_a is approximately equal to n_c .

135. (Canceled)

136. (Previously presented) The liquid crystal display device of claim 128, wherein a refractive index anisotropy $\Delta n(550)$ of a liquid crystal material of the liquid crystal layer for light having a wavelength of 550 nm is in a range of $0.060 < \Delta n(550) < 0.120$.

137. (Previously presented) The liquid crystal display device of claim 133, wherein the phase compensation element is arranged so that b-axis forms an angle in a range of 15 to 75 degrees with respect to a direction normal to the liquid crystal layer.

138. (Previously presented) The liquid crystal display device of claim 133, wherein $(n_a - n_b) \times d$ is in a range of 80 nm to 250 nm, where d denotes a thickness of the phase compensation element in a direction normal to the liquid crystal layer.

139. (Previously presented) The liquid crystal display device of claim 132, wherein the liquid crystal layer is a twist orientation liquid crystal layer.

140. (Previously presented) The liquid crystal display device of claim 121, wherein the internal scattering layer and the scattering surface of the antiglare film are defined in different layers.